



Ethanol Industry Update

1/19/11

U.S. Ethanol Industry Today

- Total production capacity of 13.77BGPY
 - Expected 2010 production of 13BGPY
 - Current capacity utilization of 13.1BGPY
 - 200 plants operating in 26 states
- There are plants under construction or expanding
- Dozens of next generation facilities in various stages of development
- 2011 RFS calls for just 12.6B gallons

U.S. Ethanol Industry Today

- ~400,677 total jobs, ~70,000 direct
- 2010 survey:
 - 83% of employees earned wages in excess of \$40,000
 - 99% reported receiving health care and other benefits
- Industry helped add \$36B to household income
- Contributed \$53.6B to the GDP

U.S. Transportation Fuels

- More than 90% of gasoline sold today contains ethanol.
- Could use more! Over 300M gallons exported in 2010.

Ethanol as a Fuel & Fuel Additive

1. E10 (10% ethanol by volume)

- Approved for use in all vehicles and engines
- ~98% of ethanol consumed as E10
- 90+% of U.S. gasoline blended with ethanol

2. E85 (68-83% ethanol by volume)

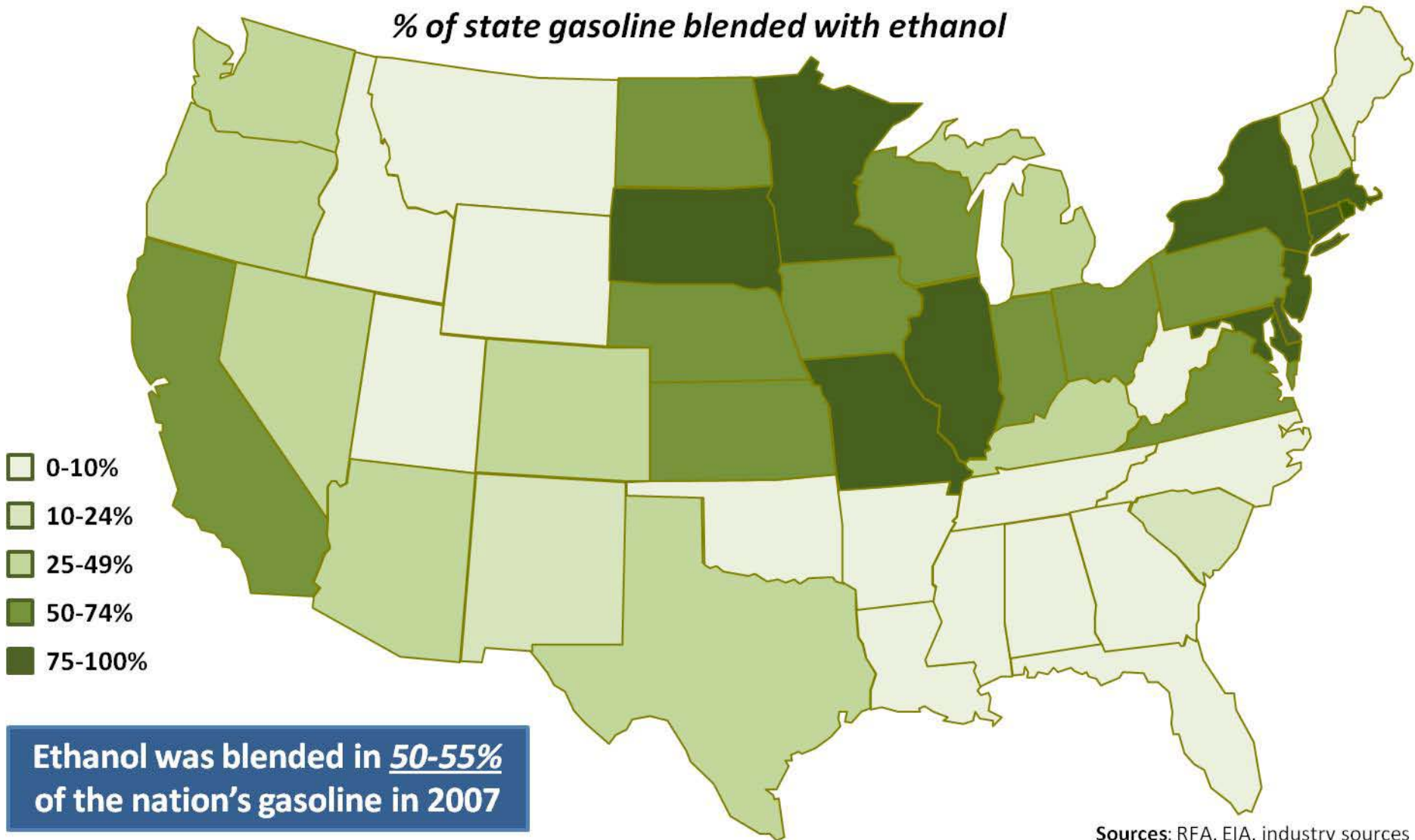
- For use in flex-fuel vehicles (FFVs) only
- 8.5+ million FFVs; ~2,400 retail outlets
- <2% of ethanol consumed as E85

3. Mid-level blends (20, 30, 40% ethanol by volume)

- For use in FFVs only
- Dispensed by “blender pumps” (300+ stations)
- Specifications, BMPs, etc. under development

E10 Penetration – 2007

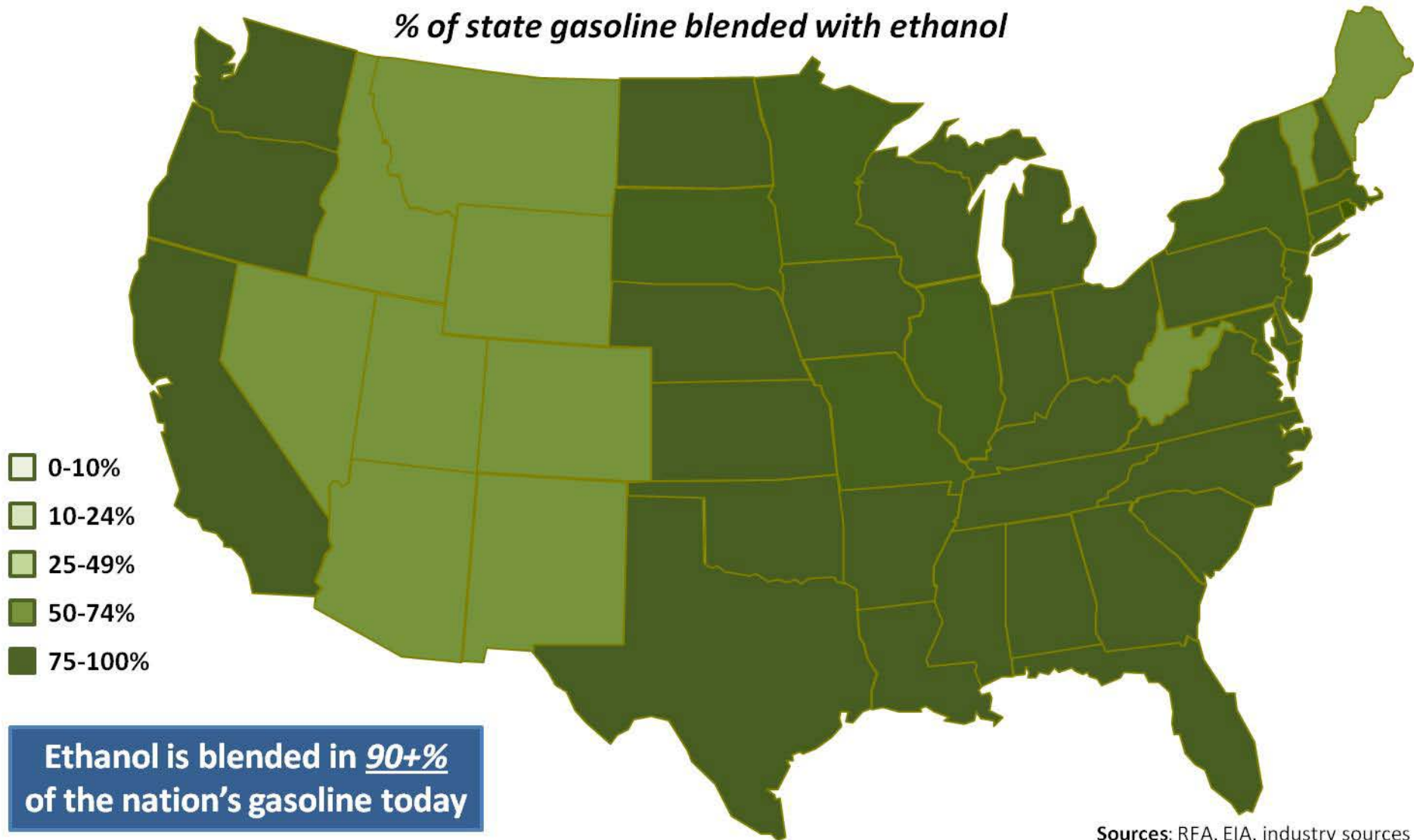
% of state gasoline blended with ethanol



Sources: RFA, EIA, industry sources

E10 Penetration – 2010

% of state gasoline blended with ethanol



Legislative Update

- Volumetric Ethanol Excise Tax Credit (VEETC) was extended until 12/31/11 at the rate of \$.45/gal.
- Alternative Fuels Infrastructure Tax Credit was also extended until 12/31/11, but value reverted back to original levels of 30%, max of \$30,000.
- Secondary Import Tariff, expires 12/31/11.

E85

- New stations in new locations.
- More players involved in infrastructure development.
- More than 40 FFV models for MY11.
- Domestic Three: 50% FFV production in MY12.
- Federal fleet usage.
- More ways to locate.

E85 Fuel Specification

- ASTM 5798-10 became effective in June.
- Lowers overall ethanol content.
- Name changed from E85 to Ethanol Fuel.
- Expect new specification for E85 only to maintain alt fuel status, 5798 will likely become MLEB specification.

Myths & Facts

Ethanol's Net Energy Balance



Sustainability

- 2009:
 - 3.8 billion bushels of corn converted into an estimated 10.6 billion gallons of ethanol and 30.5 million metric tons of the high-value livestock feed, distillers grains and corn gluten feed and meal.
 - Ethanol represented 30% of the gross corn use. But when the contribution of feed co-products is accounted for (1/3 of every bushel of corn used for ethanol is returned to the feed market), the net consumption of corn by U.S. ethanol production is just 21%.
- 2010:
 - USDA projects 4.2 billion bushels will be used on a gross basis to produce approximately 11.75 billion gallons of ethanol and 33 million metric tons of feed in the 2009/2010 marketing year.

Ethanol & Water

- Since 2001, ethanol producers have reduced water requirements by 28%, with many plants requiring less than 2.72 gallons of water to produce ethanol and distillers' grains.
- Approximately 87% of all corn grown in the U.S. is fed by rainwater. Nearly 97% of all corn used at ethanol biorefineries was not irrigated.
- By comparison, it takes 40 gallons of water to produce one cup of coffee; a pound of hamburgers, 11.6 gallons of water to produce a pound of chicken; 120 million gallons to water a golf course for a year; and 300 million gallons to produce just one day's worth of the newspapers across the country.

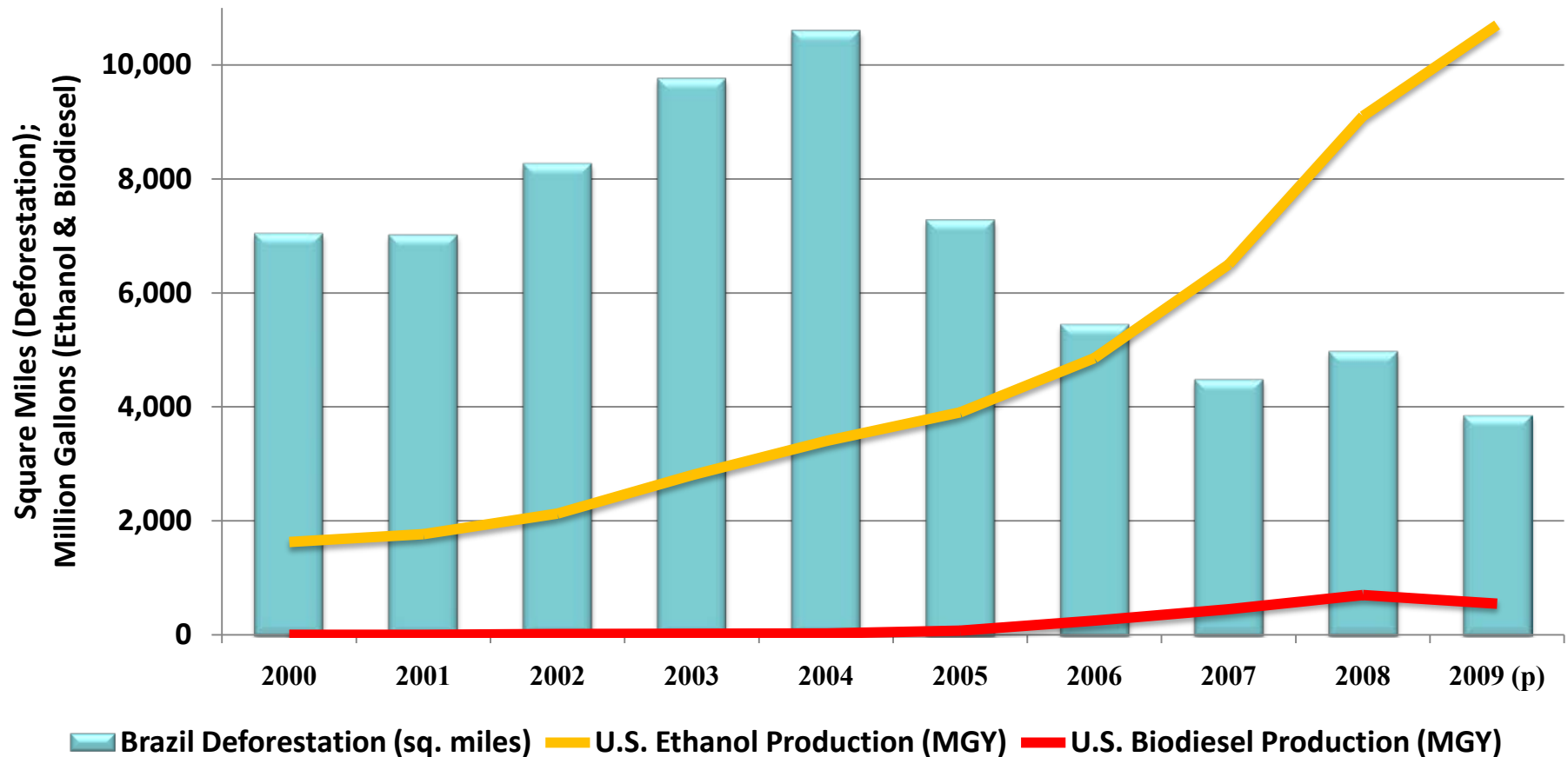
Food vs. Fuel

- Ethanol production does not use sweet corn, it uses field corn.
- Ethanol production only uses the starch. The protein, fat, fiber and oils are redistributed via distillers grains (DDGS) to livestock.
- World hunger is not an issue of supply, never has been.
- Historically, more than 10% of annual corn crop does not have a home, is surplus.

Indirect Land Use Change (ILUC)

- ILUC theory is: increased use of corn for ethanol → reduced soybean acres → reduced soybean exports → increased soybean cultivation in South America → deforestation → GHG emissions from ILUC
- EPA adds indirect emissions from ILUC to corn ethanol's GHG score
 - This results in most corn ethanol not meeting the 20% GHG reduction threshold
- No scientific consensus on how to measure ILUC, if it exists
- Current assumptions underestimate impact of livestock feed co-product, yield improvements
- Being applied selectively to biofuels at the exclusion of petroleum
 - Tar sands, methane flaring

U.S. Biofuels & Amazon Deforestation: *No Correlation!*



Renewable Fuels Standard

NEW RENEWABLE FUELS STANDARD SCHEDULE (Billion Gallons Per Year)

Year	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Renewable Biofuel	9.0	10.5	12.0	12.6	13.2	13.8	14.4	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
Advanced Biofuel		0.6	0.95	1.35	2.0	2.75	3.75	5.5	7.25	9.0	11.0	13.0	15.0	18.0	21.0
Cellulosic Biofuel			0.1	0.25	0.5	1.0	1.75	3.0	4.25	5.5	7.0	8.5	10.5	13.5	16.0
Biomass-based Diesel		0.5	0.65	0.8	1.0										
Undifferentiated Advanced Biofuel		0.1	0.2	0.3	0.5	1.75	2.0	2.5	3.0	3.5	4.0	4.5	4.5	4.5	5.0
Total RFS	9.0	11.1	12.95	13.95	15.2	16.55	18.15	20.5	22.25	24.0	26.0	28.0	30.0	33.0	36.0

Can you Flex-Fuel?

Check your VIN number and your owner's manual to verify compatibility.

CHRYSLER	Engine	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999	1998
Chrysler 300	3.6L	x													
Chrysler Aspen	4.7L			x	x	x									
Chrysler Sebring Convertible	'10 & prior 2.7L; '11: 3.6L	x	x	x	x	x				x					
Chrysler Sebring Sedan	'10 & prior 2.7L; '11: 3.6L	x	x	x	x	x	x	x	x	x					
Chrysler Plymouth Voyager	3.3L									x	x	x	x	x	x
Chrysler Town & Country	'10 & prior 3.3L; '11: 3.6L	x	x	x	x	x				x	x	x	x	x	x
Dodge Avenger*	'10 & prior 2.7L; '11: 3.6L	x	x	x	x										
Dodge Caravan	3.3L		x			x	x			x	x	x	x	x	x
Dodge Caravan Cargo	3.3L					x				x	x	x	x	x	x
Dodge Challenger	3.6L	x				x									
Dodge Charger	3.6L	x													
Dodge Dakota	4.7L	x	x	x	x	x									
Dodge Durango	'10 & prior 4.7L; '11: 3.6L	x		x	x	x	x								
Dodge Grand Caravan	'10 & prior 3.3L; '11: 3.6L	x	x	x	x	x	x			x	x	x	x	x	x
Dodge Journey	3.6L	x													
Dodge Ram 1500	4.7L	x	x	x	x	x	x	x	x						
Dodge Stratus	2.7L						x	x	x						
Jeep Commander	4.7L			x	x	x									
Jeep Grand Cherokee	'10 & prior 4.7L; '11: 3.6L	x		x	x	x									

*Select 2010 Chrysler FFVs not available for purchase in CA, NT, MA, ME, VT, CT, PA, RI, NJ, OR, or WA. Check with your local Dodge, Jeep, or Chrysler dealer.

FORD/LINCOLN/MERCUY	Engine	8th VIN Digit	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999
Ford Crown Victoria	4.6L	V	x	x	x	x	x	x							
Ford E-Series Commercial Van/Wagon/Cutaway	4.6L	W	x	x	x										
Ford E-Series Commercial Van/Wagon/Cutaway	5.4L	L	x	x	x										
Ford Escape	3.0L	G	x	x	x										
Ford Expedition	5.4L	5	x	x	x										
Ford Explorer (4 door)	4.0L	K							x	x	x	x			
Ford Explorer Sport Trac	4.0L	K							x	x	x	x			
Ford F-150	5.4L	V		x	x	x	x	x							
Ford F-150	3.7L	M	x												
Ford F-150	5.0L	F	x												
Ford Fusion	3.0L	G	x	x											
Ford F-Series Super-Duty	6.2L	6	x												
Ford Ranger Pickup 4WD & 2WD	3.0L	V												x	x
Ford Supercab Ranger Pickup 2WD	3.0L	V													
Ford Taurus (sedan & wagon)*	3.0L	2						x		x	x	x			
Ford Taurus LX, SE & SES	3.0L	2											x	x	x
Lincoln Town Car	4.6L	V	x	x	x			x	x						
Lincoln Navigator/Navigator L	5.4L	5	x	x	x										
Mercury Grand Marquis	4.6L	V	x	x	x	x	x								
Mercury Mountaineer	4.0L	K							x	x	x	x			
Mercury Mariner	3.0L	G	x	x											
Mercury Milan	3.0L	G	x	x											
Mercury Sable	3.0L	2								x	x	x			

*Many 1995-98 Taurus 3.0L sedans are also FFVs.

MERCEDES BENZ	Engine	2011	2010	2009	2008	2007	2006	2005	2004	2003
C300 Luxury & Sport Sedan	3.0L	x	x	x	x					
C350 Sedan	2.5L					x				
C240 Luxury Sedan & Wagon	2.6L							x		
C320 Sedan, Sport Sedan & Wagon	3.2L								x	x

All Mercedes-Benz models listed here are FFVs with no correlating VINs deciphering.

Vehicle data in this publication is accurate with all available information provided by 11/1/10.

GENERAL MOTORS	Engine	8th VIN Digit	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000
Buick Lucerne	3.9L	M	x	x	x									
Buick Regal	2L	V	x											
Buick Terraza	3.9L	W					x							
Cadillac Escalade, ESV, EXT	6.2L	'09: 2; '10: 1; '11: F	x	x	x									
Chevrolet Avalanche	5.3L	'06 & prior: 2; '07-'08: 0 or 3; '09-'10: 0; '11: 0 or 3	x	x	x	x	x	x						
Chevrolet Avalanche	6.2L	2		x										
Chevrolet Equinox	3L	5	x											
Chevrolet Express	5.3L	'07-'08: Z; '09-'10: 4 (not definitive); '11: 4	x	x	x	x	x	x						
Chevrolet Express	4.8L	A	x	x										
Chevrolet Express	6.0L	G	x	x										
Chevrolet HHR	2.2L	'09-'10: B; '11: W	x	x	x									
Chevrolet HHR	2.4L	'09-'10: V; '11: U	x	x	x									
Chevrolet Impala	3.5L	K			x**	x**	x	x						
Chevrolet Impala	3.9L	'08: 3; '09: M; '11: M	x	x										
Chevrolet Malibu	2.4L	'10: 0; '11: U	x	x										
Chevrolet Malibu	3.5L	K		x										
Chevrolet Monte Carlo	3.5L	K					x	x						
Chevrolet S-10 Pickup 2WD	2.2L	5										x	x	x
Chevrolet Silverado	4.8L	A	x	x										
Chevrolet Silverado 2WD & 4WD	6.2L	2	x	x	x									
Chevrolet Silverado 1/2 Ton 2WD & 4WD	5.3L	'06 & prior: Z; '07-'08: 0, 3 or Z; '09-'11: 0 or 3	x	x	x	x	x	x	x	x	x	x		
Chevrolet Suburban	5.3L	'06 & prior: Z; '07-'11: 0 or 3	x	x	x	x	x	x	x	x	x	x		
Chevrolet Suburban	6.2L	2		x										
Chevrolet Tahoe	5.3L	'06 & prior: Z; '07-'08: 0 or 3; '09: 0; '10: 0 or 3; '11: 0	x	x	x	x	x	x	x	x	x	x		
Chevrolet Tahoe	6.2L	2			x									
Chevrolet Uplander	3.9L	W												
GMC Savana	4.8L	A	x	x			x	x						
GMC Savana	5.3L	'07-'08: Z; '09-'10: 4 (not definitive); '11: 4	x	x	x	x	x							
GMC Savana	6.0L	G	x	x										
GMC Sierra	4.8L	A	x	x										
GMC Sierra	5.3L	'06 & prior: Z; '07-'08: 0, 3 or Z; '09-'11: 0 or 3	x	x	x	x	x	x	x	x	x	x		
GMC Sierra Denali	6.2L	2	x	x										
GMC Sonoma Pickup 2WD	2.2L	5										x	x	x
GMC Terrain	3L	5	x											
GMC Yukon	5.3L	'06 & prior: Z; '07-'08: 0 or 3; '09: 2; '10: 0 or 3; '11: 0	x	x	x	x	x	x	x	x	x	x		
GMC Yukon	6.2L	'09: 2; '10: 1 (Denali models only); '11: F	x	x	x									
GMC Yukon XL	5.3L	'06 & prior: Z; '07-'11: 0 or 3	x	x	x	x	x	x	x	x	x	x		
GMC Yukon XL	6.2L	'09: 2; '10: 1 (Denali models only); '11: F	x	x	x									
Hummer H2 & SUT	6.2L	2			x	x								
Pontiac G6	3.5L	E			x									
Pontiac Montana***	3.9L	W				x	x							
Saturn Relay	3.9L	W					x							

Model year available as police package. *Only available for purchase in Canada and Mexico.

BENTLEY	Engine	2011
Continental Flying Spur	6.0L	x
Continental Flying Spur Speed	6.0L	x
Continental GTC	6.0L	x
Continental GTC Speed	6.0L	x
Continental GT	6.0L	x
Continental GT Speed	6.0L	x
Continental Supersport	6.0L	x

NISSAN	Engine	4th VIN Digit	2011	2010	2009	2008	2007	2006	2005
Nissan Armada	5.6L	B	x	x	x	x	x	x	
Nissan Titan	5.6L	B	x	x	x	x	x	x	

TOYOTA	Engine	2011	2010	2009
Toyota Sequoia	5.7L	x	x	x
Toyota Tundra	5.7L	x	x	x

Select Toyota models only, check your owner's manual to verify E85 compatibility.

ISUZU & MAZDA	Engine	8th VIN Digit	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999
Isuzu Hombre Pickup 2WD	2.2L	N/A										x	x	x	x
Mazda B3000	3.0L	V										x	x	x	x
Mazda Tribute	3.0L	G	x												

Brochure is available at no cost, and can be downloaded at www.ChooseEthanol.com.

FREE Dispenser Labels



Attention:
Before selecting this fuel, please check your vehicle's owner's manual for fuel compatibility or see station attendant.

Atención:
Antes de comprar este combustible lea el manual de su vehículo para determinar compatibilidad de combustible o habla con un empleado o cajero de esta estación.



STOP!
NOT GASOLINE!
This fuel is designed to operate in Flex-Fuel Vehicles (FFVs) only. Please consult your owner's manual before fueling if you are unsure if you are operating an FFV.

STOP!

Questions?

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